



PCT/AU2004/001090

**Patent Office
Canberra**

I, JULIE BILLINGSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2003904378 for a patent by SHANNON WILLIAM O'BRIEN and VINCENT WILLIAM O'BRIEN as filed on 15 August 2003.



WITNESS my hand this
Ninth day of September 2004

A handwritten signature in cursive script, reading 'J. Billingsley'.

**JULIE BILLINGSLEY
TEAM LEADER EXAMINATION
SUPPORT AND SALES**

AUSTRALIA
PATENTS ACT 1990

PROVISIONAL PATENT

DEEP VEIN PULSATOR LEGGINGS

**THIS INVENTION IS DESCRIBED IN THE
FOLLOWING STATEMENT**

DEEP VEIN PULSATOR LEGGINGS

THIS INVENTION RELATES TO REDUCING THE INCIDENCE OF DEEP VEIN THROMBOSIS, WHICH IS THE FORMATION OF BLOOD CLOTS IN THE VEINS OF THE LOWER EXTREMITIES OF THE HUMAN BODY CAUSED BY LONG PERIODS OF INACTIVITY SUCH AS SITTING IN AN AIRCRAFT FOR EXTENDED PERIODS OF TIME, OR RECUPERATING FROM AN OPERATION.

- 5 THE LACK OF MOVEMENT OF THE HUMAN BODY OVER EXTENDED PERIODS OF TIME, WHEN THE BODY IS IN AN UPRIGHT SITTING POSITION, WILL CAUSE THE CIRCULATION OF THE BLOOD IN THE LOWER EXREMITIES (THE LEGS AND UPPER THIGH AREAS) TO SLOW DOWN TO SUCH A DEGREE THAT THE BLOOD PRESSURE CAN NO LONGER CONTINUE TO CLEAR THE VEINS
- 10 ADEQUETELY ENOUGH TO KEEP THE VEINS CLEAN
- THE RESULTING EFFECT CAN CAUSE A PART OF THE BLOOD SUPPLY WITHIN SECTIONS OF THE VEIN/ARTERY SYSTEM WHICH RETURN THE BLOOD SUPPLY UP THE LEG TO THE BODY. TO STOP FLOWING TO SUCH AN EXTENT AND FOR LONG ENOUGH TO CONGEAL INTO PLUGS OR CLOTS WHICH WILL THEN BE ABLE TO TRAVEL TO OTHER PARTS OF THE BODY CAUSIN
- 15 DAMAGE WHICH CAN BE LIFE THREATENING.
- THE ALARMING RESULT OF THIS CONDITION IS THAT IT IS VERY DIFFICULT TO DETECT, AND QUITE OFTEN WILL ONLY SHOW UP AS A VERY SERIOUS OR LIFE THREATENING PHYSICAL DEFECT QUITE OFTEN RESULTING IN DEATH.
- THESE PROBLEMS CAN BE OVERCOME BY THE PRESENT INVENTION, A SPECIALLY DESIGNED
- 20 PAIR OF LEGGINGS COMPRISING AN OUTER AND INNER LINER WITH THE INNER LINER INCORPORATING A NUMBER OF SECTIONS WITHIN THE LINER WHICH PROVIDES FOR THE CONSTANT MASSAGING AND STIMULATION OF THE CIRCULATORY SYSTEM IN THE LOWER PORTION OF THE BODY TO ENABLE THE CIRCULATORY SYSTEM TO FUNCTION NORMALLY, THUS GREATLY REDUCING THE POTENTIAL RISK OF AILMENTS COMMONLY
- 25 CALLED DEEP VEIN THROMBOSIS OR D.V.T.

IN ONE FORM OF THE INVENTION, THE LEGGINGS CAN BE PLUGGED INTO THE AIRCRAFT POWER SYSTEM TO PROVIDE THE ENERGY TO POWER THE LEGGINGS WHICH WILL ENABLE THE LEGGINGS TO OPERATE. THERE IS PROVISION TO ACCEPT A SEPARATE POWER SUPPLY

- 30 IN ANOTHER FORM , THE LEGGINGS COME COMPLETE WITH A SEPARATE POWER SUPPLY AS PART OF THE LEGGING ASSEMBLY. THIS ARRANGEMENT THEN ENABLES THE WEARER TO MOVE ABOUT FREELY AT WILL. THE LEGGINGS COME IN PAIRS, ONE FOR EACH LEG

- 35 TO ASSIST IN THE UNDERSTANDING OF THE INVENTION, REFERENCE WILL NOW BE MADE TO THE ACCOMPANYING DRAWINGS WHICH SHOW ONE EXAMPLE OF THE INVENTION.

FIGURE 1 SHOWS THE BASIC LAYOUT OF THE INNER SECTION OR LINER WHICH IS BASICALLY AN AIR BLADDER PAD 1 SEGMENTED INTO SEPARATE DIVISIONS BY DIVIDERS 2

40 THE NUMBER OF SEGMENTS WILL VARY TO ACCOMMODATE THE VARYING SIZES NECESSARY TO FIT THE DIFFERENT SIZE LEGS. THE LEGGINGS ARE CONSTRUCTED IN SUCH A WAY AS TO COMPLETELY ENCAPSULATE THE LOWER CALF AREA OF THE LEG

- THE BLADDER WILL NORMALLY BE ENCLOSED WITHIN A SLEEVE CAPABLE OF BEING FITTED TO THE CALF SECTION OF THE LEG, THAT IS THE SECTION BETWEEN THE KNEE AND THE TOP OF THE ANKLE. THE BLADDER PAD IS FITTED TO A PUMP VIA A CONNECTION AS SHOWN BY 3 . THE PUMP AS SHOWN IN FIGURE 2 IS PART OF AN ASSEMBLY FITTED TO AND WORN AS A WAIST BELT FOR PORTABILITY.

- THE PUMP ASSEMBLY COMPRISES THE WAIST BELT 1, THE AIR PUMP ASSEMBLY HOUSING 2 ON/OFF SWITCH 3 , THE POWER PACK 4 , THE AIR PRESSURE PUMP 5 , THE FLEXABLE AIR DELIVERY HARNESS 6 , THE LEGGING 7 , THE AIR LINE CONNECTOR 8 .
- 50

- THE OPERATION OF THE DEEP VEIN PULSATOR LEGGINGS IS AS FOLLOWS. WHEN THE ON /OFF SWITCH 3 IS ACTUATED, SUPPLYING POWER TO THE AIR PUMP 5 WHICH IN TURN WILL
- 55 PRODUCE PRESSURED AIR WHICH IN TURN WILL FLOW INTO THE MESSAGE LEGGINGS 7 .

IN SUCH A WAY AS TO PRESSURISE THE ASSEMBLY CAUSING THE LEGGINGS TO CONSTRICT AROUND BOTH CALVES OF THE LEGS. THUS FORCING THE EXCESS BLOOD UP AND OUT OF THE LEG AREA. THIS ACTION IS A PULSATING SEQUENTIAL ACTION, WORKING FROM THE BOTTOM UPWARDS. THIS ACTION IS CONTROLLED BY THE POWER PACK MECHANISM

- 60 THE ONGOING RESULT OF THIS ACTION WILL PREVENT BLOOD FROM ACCUMULATING IN THE LOWER SECTION OF THE LEG WHICH IN TURN WILL HELP PREVENT BLOOD CLOTS FORMING IN THE LEG TO CAUSE DEEP VEIN THROMBOSIS. THE LEGGINGS CAN BE FITTED OR REMOVED AT
- 63 WILL BY THE WEARER.

FIGURE 1 SHOWING BASIC LAYOUT OF LEGGING PRESSURE PAD

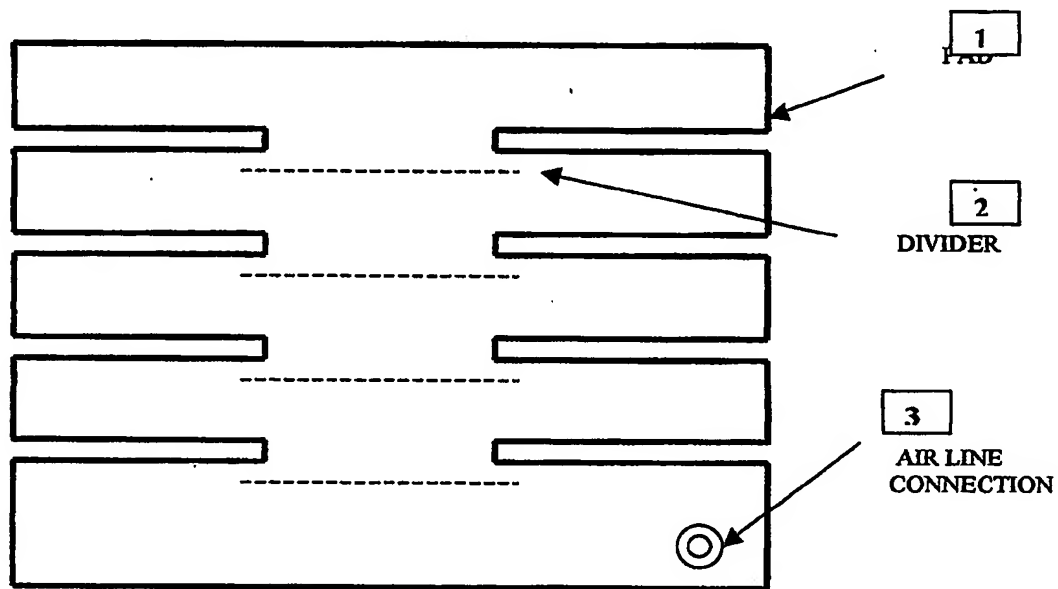
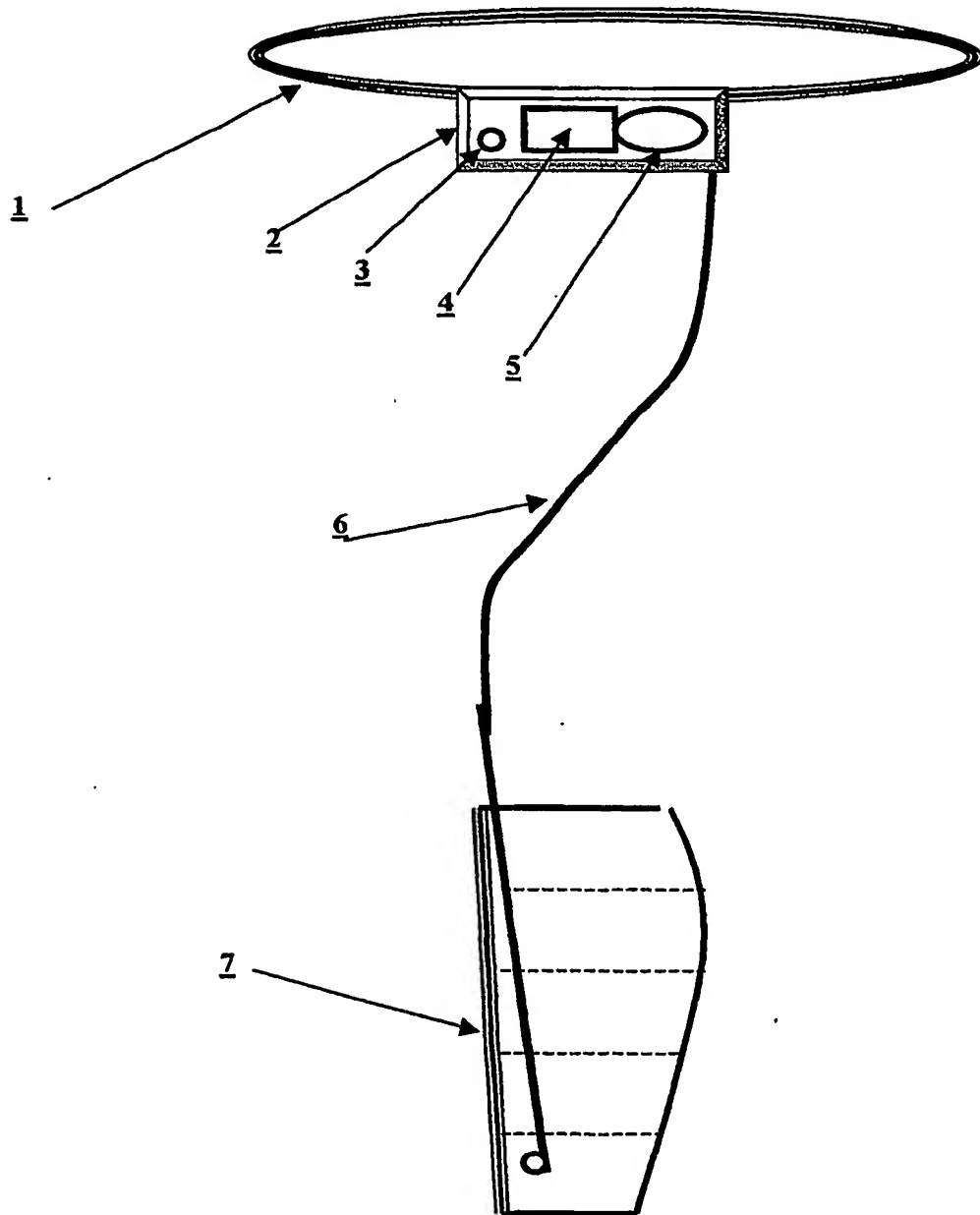


FIGURE 2 SHOWING COMPLETE ASSEMBLY



Document made available under the Patent Cooperation Treaty (PCT)

International application number: PCT/AU04/001090

International filing date: 13 August 2004 (13.08.2004)

Document type: Certified copy of priority document

Document details: Country/Office: AU
Number: 2003904378
Filing date: 15 August 2003 (15.08.2003)

Date of receipt at the International Bureau: 01 November 2004 (01.11.2004)

Remark: Priority document submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b)



World Intellectual Property Organization (WIPO) - Geneva, Switzerland
Organisation Mondiale de la Propriété Intellectuelle (OMPI) - Genève, Suisse